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GOD AND THE WORLD

BY

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PREFACE

This book contains the substance of a series of Addresses given to the Manchester District Lay Preachers' Union in the autumn of last year. They are now published by request, with additional paragraphs dealing with points which emerged in the discussions which followed the Addresses.

In preparing the material for the press I have been greatly assisted by some shorthand reports placed at my disposal by Miss Barbara Thomas.

The subject dealt with in the following pages arises directly out of the central problem of Theism—the meaning and grounds of Belief in God ; and the title given to this book indicates the way in which the problem is approached.

S. H. M.

Manchester, *June*, 1919.

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I

THE UNIVERSE

MANY years ago a challenge was put forward by some of the more thoughtful exponents of what was popularly known as Atheism. The late Charles Bradlaugh, for example, insisted that the Atheist does not say 'There is no God'; he says 'I know not what you mean by God; I am without the idea of God; the word God is to me a sound conveying no clear or distinct affirmation. I do not deny God, because I cannot deny that of which I have no conception, and the conception of which, by its affirmer, is so imperfect that he is unable to define it to me.'

God/ide

This challenge appears the more suggestive the more we reflect upon it. When we grapple with the question of what we are to mean by the word

'God,' we find that we are at the beginning of a path which, if followed, opens up the possibility of an answer to the further question of the grounds on which we may affirm that God is real.

In considering such a problem, we have to start from experience. We find two great highways or avenues through which we may approach the question of the meaning and grounds of belief in God—one through our human nature, the other through non-human, physical nature. We have in the first place to concentrate our attention on the approach to belief in God—whatever it may prove to be—from the physical world, or 'nature' in the narrower sense. This compels us to raise the question of what Science, whose business it is to investigate 'nature,' has to say in relation to the religious man's belief in God; and this again requires us to take a backward look in order to realize precisely what the relation of Science and Religion was in the last century.

We are at once met by what appears to be a very disconcerting fact. The attitude of Science to Religion was one of extreme, and mutual, antagonism. This conflict was even then no new theme for the historian ; but in the last century it came to a climax in connexion with the unprecedented advances of knowledge during that period. We seem at first sight to find that the verdict of Science, with regard to the whole question of rational belief in God, meant either that such a belief is in itself impossible, or at the most that it is impossible for us either to affirm or deny it. Why was this impression conveyed by the advance of science ?

I will quote a statement corresponding to what many have experienced in the course of their own reflection on these things. A thoughtful American divine thus describes his personal experience : ‘ When we believed that this earth was the centre of God's universe, the most important body in it, and that everything existed merely for the sake of men, the sun to lighten our pathway and the stars to shine upon us by night, and that God had created this planet only a little while ago for a distinct and definite end, it was easy, then, to think of the Almighty as having a plan, not only for the world but for each person in it. I was taught that the world was created about five or six thousand years ago; that it was created in six days of labour, followed by a Sabbath of rest; that the world was to exist six thousand years in the midst of the toil and struggle of life, in the battle between good and evil, leading to the redemption of mankind or part of mankind from the consequences of the Fall; that then was to follow a thousand years of peace, the millennium of rest, after which this world and its affairs were to be wound up, and this system of ours was to cease to be. It was easy, then, to believe in God's plan. We could imagine a world of that kind, and a God of that kind. The scheme could be grasped and made real to us. But what has happened? We have found that this world, which we once believed was the most important body in the universe, is one of the smallest in our solar system, and this solar system one of the smallest among the systems, and its sun one of the smallest among the stars; we have found that man, who thought himself the centre of all things and the special care of the Godhead, instead of being a special creation for a purpose that he thought he knew all about, has been developed, racially speaking, by natural processes from lower forms of life; and that some of the laws of this long development can be formulated, whatever be the power or force behind them or controlling them. We have waked up to feel ourselves lost in infinity. We have a new problem before us, and it must be looked at in a new way; and if we are to have faith in any plan or purpose of God, we must get it in a way different from that which satisfied our forefathers.'

It was believed that the eye was made to match the light, and the ear to match the waves of sound, that wings were created ready to enable their possessors to move in the air, and fishes created ready to live in the sea: in a word, that all the processes of nature were planned and constructed as an artificer might plan and construct a house; and it was argued that there is an analogy between the mechanism of a human contrivance, such as a watch, and the mechanism of the forms of life in nature at large; and if the one had a planner, a designer, so must the other have had. But now we find that if there be design, it must be of a kind different from this.

The eye is adapted to light undoubtedly; but why? Because in the agelong evolution of living beings, the constant play of light on the sensitive nervous substance, and the response of the nervous substance to the light, gradually created the organ of vision; and we can actually trace, in the existing scale of life, the series of elementary forms of the eye. Or, again, when a particular type of animal life is found obviously adapted to certain surroundings, as in the Arctic regions, it is not because those animals were specially made ready to live in such regions, but because, in the long history of many variations, only those survived which could maintain themselves under such conditions. Or, once more, we may find on a small island in the ocean a type of wingless insect, which type we find in other larger lands winged. The suggestion of evolution is, that the winged forms of this type were blown away in the course of time until at last none of them survived, and only wingless forms were able to maintain themselves on that island.

These are only a few elementary examples of the kind of explanation of ‘ adaptations ’ in nature, which has become a commonplace in biology and in the scientific discussion of evolution since Darwin’s time. And above all, explanations of this kind have been successfully extended to cover the history of many human endowments also.

Yet even this is not the whole of the

story. With reference to the globe on which we live, we must add the gradual strengthening of the conviction that the universe of which we form a part, so far from being the small thing which it once was assumed to be—which to-day a little child assumes it to be, and others who are not children—is such that no limits to its vastness can be assigned. The gradual unfolding of the results of astronomical investigation reveals to us a universe in the strictest sense unlimited.

Moreover, beside the group of investigations having their centres in astronomy on the one hand and biology and geology on the other, we have another group dealing not with the spatial or temporal extent of the universe but its inward structure: such are, chemistry, physics, and the allied studies. What have these revealed? The general result is quite clear: and that is, that the internal structure of these material things which enter into our everyday experience is one of immense complexity. What once was supposed to be the final unit of matter, the indivisible atom, now turns out to be as complex in its structure as though it were a little universe in itself.

A generation ago, a retired railway director, who had devoted himself to the popularizing of what he supposed to be science, said that if you took any fragment of matter and imagined it expanding with all its parts in proportion until it was as large as the universe now is, you would see with the unaided eye that it was composed of little bodies varying in size from a pea to a cricket ball. The picture thus suggested is a grotesque departure from fact. What we should really see in such circumstances few competent students would care to say. What we have grounds for believing is the unlimited complexity of the very atoms themselves.

It was all this that led to the increasing strife between Religion and Science, which reached its height during the seventies of the last century. In 1874 Tyndall gave his famous address before the British Association in Belfast, in which he was taken to assert that absolute materialism was the last word of science, discerning in matter the promise and potency of every form of life and being. Admittedly, in saying that, he went beyond the realm of science and entered the realm of speculation; but the importance of the statement lay in the tendency which it indicated.

In the face of these increasingly successful investigations, the group of beliefs based specially on the Biblical account of the world's origin has broken down beyond repair. That meant the disappearance, as history, of the story of Paradise and the Fall, and a revolution in the whole Christian doctrine of salvation. When the Biblical doctrine of the Creation broke down, the arguments for belief in God, which were based on the old notion of design, were seen to be hollow, and a totally new point of view was demanded. This has been the great problem for religious thinkers. I am not speaking specially about the work of the people known as

Unitarians ; but I would call to mind the fact that among the men who did most in the last century to ease that bitter conflict and to accustom the public mind to the new points of view demanded, were a number of Unitarian thinkers, and, greatest of all, James Martineau.

This strife has largely died away. It is possible for an Anglican scholar, even in a commentary on the Book of Genesis, to express himself in a fashion very different from that of his predecessors. I quote the passage in full, because in it the late Dr. Driver, of Oxford, outlines in a remarkably lucid way the general result of the scientific investigations of which we have been speaking, and brings that result into contrast with the Biblical story as we have it in the Book of Genesis.

'The earth, as we now know, reached its present state, and acquired its rich and wondrous adornment of animal and vegetable life, by a gradual process, spread over countless centuries, and embracing unnumbered generations of living forms. Those white cliffs which rise out of the sea on our coasts, when examined by the microscope, are seen to consist mostly of the minute shells of marine organisms, deposited at the rate of a few inches a century at the bottom of the ocean, and afterwards, by some great upheaval of the earth's crust, lifted high above the waves. Our coal measures are the remains of mighty forests, which have slowly come and gone upon certain parts of the earth's surface, and their remains been buried deep beneath it. These and other formations contain moreover numerous fossil remains; and geologists have been able to determine the order in which, during the slowly passing ages of their growth, higher and higher types of animal and vegetable life were ever appearing upon the globe.'

Nor is this all, as Dr. Driver points out. 'Astronomers, by the study and comparison of the heavenly bodies, have risen to the conception of a theory explaining, by known physical and mechanical principles, the formation of the earth itself. The solar system, i.e., the sun, earth, and other planets, existed once as a diffused mass of incandescent gas, of immense dimensions, which gradually condensed and became a rotating sphere; and from this in succession the different planets were flung off, while the remainder was more and more concentrated until it became what we call the sun. One of these planets, the earth, in process of time, by reduction of temperature and other changes developed the conditions adequate for the support of life.'

All the ablest students are agreed that the story of creation as told in the first chapter of Genesis cannot be reconciled with the story as told by science. Dr. Driver's verdict cannot be gainsaid: 'If the writer of this chapter had been acquainted with the actual past history of the earth, he would, while still using language equally simple, equally popular, equally dignified, have expressed himself in different terms, and presented a different picture of the entire process.'

The conflict between Religion and Science, then, was largely due to a misuse of the Bible. The Bible was regarded as authoritative, not only in relation to moral and spiritual things, but in relation to the general range of physical and historical fact. The consequence was, that any scientific speculation was required to be tested by texts, and if a text could be quoted against it, it was to be condemned as false. Columbus said that it was possible by sailing West to find a way round to the lands of the far East. The idea was scouted because there were texts against it. Galileo said that the earth moves round the sun and not the sun round the earth ; but there were texts against it. So there were texts against Newton's discovery of the great law that controls all motion throughout the universe, and against Darwin's view that the creation of living things was a process spread out through millions of years. Such men were denounced for denying God's Word. But what happened ? The scientific discoveries one by one held the field; and the champions of Scripture had to admit, 'It was our fault for using the Bible wrongly.'

We must, however, be clear in our own minds about what we mean when we speak of science having progressively *demonstrated* a certain conception, such as that of evolution. We must beware of reading too much into statements of this kind. Allowing the utmost that can be allowed to the scientific conception of evolution, we find that what is given us is an account of *the method of creation* rather than an explanation of it. In other words, we must be clear in our own minds about the distinction between the fact and the cause of the fact, which are inseparable in reality, yet scientifically and logically distinct. Just as we can distinguish the military operations involved in the War, and the continuous production and supply of the munitions and other necessaries required for the maintenance of those operations, so we can distinguish the process of continuous change which we call evolution, and the cause or the various causes involved in the explanation of the process—in a word, the method, and the interpretation of it.

There is reason to fear that some of us are inclined to weave some favourite explanation of our own into the story of the process and then fail to distinguish the two. This leads to nothing but confusion. There is an interpretation of evolution associated with the teaching of Bergson; there is the agnostic interpretation, as in the writings of Herbert Spencer; there is Darwin's discovery of 'natural selection' as a main factor at work; but evolution is not 'Bergsonism,' 'Spencerism,' or 'Darwinism,' any more than it is Theism.

The distinction between fact and cause is of supreme importance in reference to the question of the historic evolution of the earth and of the solar system at large. The most reliable conclusions are those summarized by Dr. Driver in the passage which we have quoted. Let scientific thinkers demonstrate from age to age with increasing accuracy the process as a series of changes : it is evident that the immense problem of the explanation and interpretation of it still remains.

The scientific value of the Biblical creation-story is very small ; but what about its religious value ? A little reflection shows that this is its real value ; and only when treated as science, only when misused so far as to be made into an authoritative account of the origin and development of things, is it an obstacle in the way of truth, as it actually has been. A just impression of its religious value may be gained by comparing it with the creation-stories which arose in kindred religions, particularly with that of the Babylonians.

From the strictly scientific point of view, the Hebrew and the Babylonian accounts are equally worthless. They have several points in common. They both assume a very simple conception of the universe, with its solid dome overhead, the ‘ firmament,’ supporting an expanse of waters above it, with the earth beneath, and a region beneath the earth. They both assume at the beginning a ‘chaos,’ an uncreatedness as it were, when there was nothing but confusion. They both assume a divine intervention. What are the differences? According to the Babylonian story, out of the chaos the gods were born one by one through a long series of ages. Eventually these gods began to engage in internecine warfare among themselves. The superior and inferior gods fought, and the creation of the habitable earth was the result of that war. The story is wrought out in a series of mythological pictures which to a modern eye seem extraordinarily grotesque.

The difference between this and the Hebrew story is essentially a religious difference. If you open your Bible, in place of the Babylonian mythology of many warring gods you find simply the words *In the beginning, God.* This thought, of one supreme divine Being, marks the Hebrew point of view as distinguished from the Babylonian. Although in the beginning the earth was without form and void, and darkness and the deep seemed to divide all between them, yet it was not really so, for even then, *God was*. He did not come into being ; unhindered his power went forth, and without struggle quelled the tumult of chaos and called into being each new order of things he purposed to create. Though the Hebrew imagined the creation in six days complete, and could not rise to the thought of it as always and everywhere proceeding : yet, rising as he did to that great thought, *In the beginning*, *God*, he laid broad and deep the foundation on which all religion is built.

II

THE POWER NOT OURSELVES

WE have spoken of the conflict between Science and Religion which came to a head during the latter part of the last century; and we have shown that it was, at least in part, due to a misuse of the Bible, bringing it into conflict with the assured results of science. We have now to observe that the trouble was not only due to the *assured results* of science. We sometimes, not unjustly, speak of science almost in reverential terms; but we sometimes forget that men of science are as human as theologians. And, to put it shortly, their achievements in the last century caused more than one of them to lose his head.

The result was that in addition to the growing bulwark of trustworthy scientific knowledge, such as that of which we have been speaking, there was a growing accumulation of what professed to be ‘ scientific ’ speculation. There was a growing tendency to push the principles which had achieved such magnificent results, and carry them far beyond the realm of assured knowledge: and the result of this was not science by unscientific dogmatism. The theory of materialism was presented as the last word of science about the nature of things. Now materialism is a conception capable of intelligible statement—radically false as I believe it to be: it can be stated, and to a certain extent defended. But if any man offers you a theory of materialism as though it had a claim on your acceptance similar to that which the assured results of science have, then he is no better than an impostor. Whatever is to be said for the materialistic interpretation of life, it cannot be placed on the same level as those conclusions of science which have been productive of discovery and invention over the whole field of civilization. It cannot claim the prestige which is rightly claimed for the tangible results of actual scientific work.

When we try to imagine the condition of things a generation ago and more, we can understand how these principles, which had led to so many fruitful discoveries, came to be regarded as having a right to be pressed over the whole of experience, as explanatory not only of matter but also of morality, religion, and in a word of the human mind and all its distinctive achievements. We can understand too how, when it was realized that the whole story of creation could be regarded as a gradual process, and its method stated in the form of a number of general laws, the same conception of a process of unvarying and inviolable law came to be pressed much further, and was claimed as the only rational method of explaining all human life and experience. Hence the assumption that we are helpless in the network of fatally determined 'iron law.' What we all need to understand is, that these things are at the best debatable speculations; and at the worst, when offered as 'science,' impudent impostures.

For the present we leave these speculations on one side, and concentrate attention on that fundamental conception which science names 'the Universe.' I have referred to the tendency of recent investigations—astronomical, physical, chemical, and biological—greatly to extend the vastness and complexity of creation. We often speak of 'the world,' but this is only a fashion of speaking. We are beyond that, at the very outset. We cannot appreciate the scientific point of view at all until we succeed in formulating the conception of an unlimited universe; and we shall have to formulate the conception so that it will take account of, and explain, the aims and ideals as well as the assured results of science. So regarded, the term becomes of increasing importance and significance. In the end we shall see that it defines the point where science and religion touch or overlap, and that the difference lies in the aspects of the conception which are emphasized respectively by science and by religion.

From the scientific point of view the conception is, in its outline, that of a whole, unlimited in complexity both externally and internally, and unlimited in extent: yet a ‘whole,’ because it is fundamentally of the same kind throughout. What is the most that science can tell us about the general nature of this infinite Whole? That it exists, is evident, if there is any truth in science at all. We do not need proof that it exists. All our knowledge is only about it. All our scientific knowledge is knowledge, only if the universe is there; and if it is not, then our knowledge and our thought are illusions: and the mind cannot rest in that assumption. If then its existence needs no proof, our question is this: What is its character as science defines it? We shall see that the definition of the universe required by science is the beginning of the definition of God required by religion. This means that in the most that science presumes to affirm about this universe we have the beginning of the religious conception of God—a conception requiring from the point of view of religion, not contradiction, but further explanation, further definition, further elaboration. We substitute for the conflict not identification but harmony, inasmuch as what we gather from science about the general character of the universe is neither in conflict with the meaning of religion nor identical with it. It leads us to the point where religion begins to define itself.

By this method of approaching the problem, we avoid the confusion caused by the traditional attempt to 'prove the existence' of God. Our question is as to the general character of that whose existence must be taken for granted, if there is to be such a thing as knowledge at all.

The conception of the universe, which science has revealed, is not that of anything motionless or inert or dead. Where our limited senses show us deadness or sameness, science reveals to us an intensity of activity, we may even say an intensity of life. The universe is a thing teeming with energies. The conception of one continuous indivisible energy, revealed throughout the physical universe, is verified repeatedly and progressively by physics and chemistry, and becomes at length the thought of a single all-pervading force, uniting all known portions of this unlimited universe into one harmony and one whole.

What does this imply with regard to our senses? It implies that the real world which our senses show us is not real in the way in which we usually imagine it to be. Yet, far from being an illusion, it is the abode of activities and energies which we do not directly see or feel or touch—energies whose existence and laws are discovered, not because they affect any sense-organs of ours, but because science has been able to construct instruments delicate enough to manifest some of their effects. Beyond what our senses directly reveal, literally unheard, unseen, unfelt, stretches the vast extent of nature's unexplored energy, capable of being so far mastered as to be turned to human purposes. Wireless telegraphy is only one of the open secrets of these energies, from which our senses cut us off, and which yet are discovered and controlled by human skill.

The words used by the late Herbert Spencer, at the close of what is otherwise one of his weakest books—the little work on 'Ecclesiastical Institutions'—need not, therefore, have occasioned any surprise. On the contrary, they give a remarkably true and suggestive statement of what is meant by that conception of the universe which science hands over to us.

No modern English thinker laboured more strenuously than Spencer to defend an important theory of the origin of religion, which traces it all back to an illusory interpretation of the phenomena of dreams on the part of primitive man. He endeavoured also to show that historic religion must in the end culminate in the recognition of one truth, growing ever more clear—that there is ‘an inscrutable existence everywhere manifested, to which our thought can neither find nor conceive either beginning or end.’

We are not now concerned to press the question, how that which is ‘everywhere manifested’ can be ‘inscrutable.’ Suffice it to say that according to this doctrine, religion culminates in the conviction that ‘amid mysteries which become more mysterious the more they are thought about, there will remain the one absolute certainty, that we are ever in the presence of an Infinite and Eternal Energy, from which all things proceed.’

But if the primitive belief in which religion originated was an illusion, how can the derived belief be true? Spencer was aware that this is a real question. He answered it by urging that the primitive belief was not, after all, wholly illusory. ‘At the outset a germ of truth was contained in it—the truth namely that the Power which manifests itself in our consciousness is but a differently conditioned form of the power which manifests itself beyond our consciousness.' The internal energy which the primitive man experienced as the source of his own actions is the same energy which, freed from anthropomorphic accompaniments, forms the only possible symbol in terms of which science can interpret the forces underlying Nature. The last stage reached is to recognize that these external forces cannot be identical with the internal energy of which we are aware in consciousness ; and yet, as either is capable of acting on the other, ' they must be different modes of the same.' This is admittedly a speculation, though a suggestive one.

What we are now, however, specially concerned with, is Spencer's fundamental statement of the reality of the Infinite and Eternal Energy from which all things proceed. This is the God of science. I call your attention to his phraseology : ' the one absolute certainty.' This at least we may say : the assumption is as certain as science is. Since science has proved her power to work, and can produce results which have in them the promise of a transformed civilization, the plain man trusts the methods of science even where he does not understand them; and I think he is right. The assumption involved with regard to the universe becomes more than an assumption; it becomes substantially what Spencer means when he speaks of a 'certainty.'

I say 'the God of Science.' This means that so long as you remain within the bounds of science, you cannot move beyond what science there outlines. Spencer was a philosophical agnostic, which means that he thought that any knowledge of the Infinite and Eternal Energy, beyond what he himself stated, is impossible.[1] We cannot here discuss that side of it. But, taken as a statement of the most that science can tell us about God, Spencer's statement appears remarkably just.

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[1] See the note appended to this Lecture.

It was in order to approach this conception, that we undertook this brief review of the tendencies of scientific thought and discovery. And we are now in a position to state the fundamental question involved in the idea of God. We have this conception which science hands over to religion. What more does religion require ? We have the conception of an infinite and eternal impersonal energy. I believe that religion does need more than this ; and that what religion needs can be defined.

You will observe that we have put aside the traditional method of approaching the question—the method of 'proving the existence' of God. We are not trying to 'prove the existence' of anything. What we are doing is to look at the general results of scientific method, in order to grasp what science has to tell us in general terms about the universe ; and we now require to know what further definition, what further elements, does religion introduce into this conception ?

Science leads us as it were to the

termination of a road—or to the circumference of a circle—beyond which she cannot take us, but beyond which lies another road—or the circumference of another circle—that of religion; or, to change the figure again, we are led to a watershed, on this side of which flows the stream of science, and on the other side the stream of religion. There is a line of contact, but no necessary conflict; and the question is, what further may be known of the character of that Infinite and Eternal Energy of which Spencer speaks as being revealed in all things 'thus far and no farther.'

This way of putting the matter is suggested by a striking but little-known article published in a magazine now long extinct, from the pen of the late Florence Nightingale, on 'The Character of God.' The article appeared in *Fraser's Magazine*, May, 1873. Her main point is, that the greatest and most fatal mistakes in this world have been made through not understanding the character of God. And when the question is regarded from this point of view, as one not of the existence but of the character of God, then we may find a pathway from science to religion, and at the same time realize precisely where the basis of religion lies. God's existence is beyond question. The only question is as to his character.

We may suggest, in a preliminary and provisional way, what more religion requires, by reference to a favourite thought of Robert Browning. He frequently contrasts the significance of Power and Love in the universe; and his own belief appears to be, that what science reveals is infinite Power and nothing more—as suggested by Spencer; but that religion, and above all essential Christianity, assumes as its basal act of faith the equal reality of Love:

From the first, Power was—I knew;
  Life has made clear to me
That, strive but for closer view,
  Love were as plain to see.

Where science sees infinite and eternal Power, religion sees with equal certainty infinite and eternal Love. The question of establishing or strengthening our faith in God, is the question of establishing or strengthening that interpretation.

Having taken this brief view beyond the watershed, we must return, in order to ascertain what more, on the showing of science herself, may be inferred regarding the character of the infinite power. Science has something more to tell us—something which is of extreme significance for life as well as for faith. It needs no saying to thoughtful men living in our time, that one of the vital foundations of the scientific conception of the universe is the assumption of law—the assumption of a power that works always and everywhere by the method of inviolable law. Precisely what does this mean ? What does it admit, and what does it exclude ? In following this clue, we shall incidentally but none the less effectively obtain a conception of what must be meant by ‘ miracle,’ whether or not such a thing has actually occurred.

NOTE

The references made above to Herbert Spencer relate specially to what is said in the concluding paragraphs of an article which originally appeared in the *Nineteenth Century*, July, 1884, and which aroused widely-spread interest and considerable controversy. The article now appears as the concluding chapter of *Ecclesiastical Institutions*, and is contained in *Principles of Sociology*, vol. 1, pp. 656 ff. We are not here concerned with his agnosticism as a technical philosophical doctrine. This doctrine he supposes to be 'proved by an analysis of the forms of our intelligence'—that the Power 'everywhere manifested' is not only largely unknown but absolutely unknowable. It is now generally admitted that this analysis, derived by Spencer from Hamilton and Mansel, is based on a wholly mistaken view of the nature and reference of knowledge. This question may be investigated with the help afforded by Professor Pringle-Pattison, in the fifth chapter of his book on *Scottish Philosophy*, and by Dr. James Martineau, in his Essay on 'Science, Nescience, and Faith,' printed in the fourth volume of his collected *Essays and Addresses*.

III

THE REVELATION OF LAW

WE are now in a position to proceed from that conception of the universe which is implied in Herbert Spencer's statement already quoted: a universe unlimited, and yet a whole: and pervaded to its inner and outer depths by one continuous ever-active energy, which is an objective and fundamental reality. Hence the thinker whom we have quoted, spoke of 'the Infinite and Eternal Energy from which all things proceed.'

We find that science is compelled not only to assume an all-important affirmation about the character of this Power, but to stake her very existence upon the validity of the assumption. It is an Order manifesting itself in unvarying law. The precise meaning of this affirmation constitutes our next question.

THE REVELATION OF LAW

What is natural law as science understands it? The best way to answer the question is to begin by considering an actual example, taken from chemistry,—the general nature of which is probably better known than that of some other experimental sciences. Consider the chemical composition of water. Two elemental gases, being combined chemically in certain definite proportions, yield a definitely measurable quantity of water. The proportions can be stated precisely: so can the resulting quantity of water produced by their combination; but the combination takes place only and always under certain definable conditions. And we find that, given those conditions, the two gases always combine themselves chemically in that way and produce that result. This is what is meant by a 'law of nature.' Given certain conditions, we find that a certain result is produced; and to call this a 'law' means that we generalize it and assume that always and everywhere, given those conditions again, the same result will be produced. It happens the first time we try it, and the hundredth and the thousandth and the millionth time.

Scientific discovery consists in ascertaining the greatest possible number of such results, every one of which can be stated in that way in the form of a law. If certain conditions are set to work—we might even say, created—the combination of them at any rate is created—then a result capable of being definitely stated invariably follows.

There are some quite familiar facts which at first sight appear to contradict this view of law, but they are really only further confirmations of it. Thus, water appears to boil at different temperatures. But this only occurs when the conditions are altered, as they are, for instance, at a height of five thousand feet, when the pressure of the atmosphere is different from what it is at sea-level. The variety and complexity of the conditions which affect the determination of what may seem very simple matters, will be seen by anyone who studies the scientific and legal definitions of the standard units of measurement and weight.

Hence we may say that every law of nature is a law with an ‘ if ’ ; and this provides us at once with a definite and workable meaning for the ‘ order ’ of nature. Nature is constructed in such a way—in the language of Theism, nature was so created by God : or, waiving all questions of origin, the nature of things is such—as to be pervaded throughout by principles of the kind which we have explained. It seems to belong to the very structure of nature that whenever and wherever you have found certain conditions producing a result, then, though they may never have occurred before, those conditions when set to work again will produce the same result. In this sense, we can count on or rely on the order of nature.

Another way of approaching the conception, is to make the attempt to imagine a ‘ nature,’ if the word can be so used at all, *without such an order.* The very structure of the universe would have gone. We should have an inconceivable and unimaginable chaos. Given conditions would produce life one moment and death the next. Knowledge, growth, and even life itself would be impossible. But it is not so. We can rely on the results of the conditions which we set to work. And the only way to alter the result is to alter the conditions.

The same truth holds of the inner life. Here too there are conditions which, if set to work, issue in actual results, and which, if they act again without modification, will issue in the same results. Though our knowledge of the laws of the inner world is very limited, all education is based on the assumption that the realm of thought, feeling, and will is a realm of law in the sense defined, although the conditions which are at work are quite different from those dealt with in chemistry, physics, or any merely physical science. Physical facts, of nerve and brain, are indeed among these conditions, but they are profoundly modified by being part of the process of a living body, and moreover of a living body endowed with mental life.

Our knowledge of our inner life is imperfect, yet so far as it is knowledge we can count on the order of the events which happen. In order to live a rational life at all, I must know what will result from the thoughts I think, words I speak, the deeds I do, not only in the outer world but in my own mind and in the minds of other people. If I utter words capable of being rationally comprehended, and they are rationally comprehended, then I must know that the words will not mean one thing to-day and another to-morrow. And if I am to train myself, and develop a consistent character, standing in intelligible relation to an orderly world, I must be able to know that definite mental conditions will issue in definite mental results.

Forty years ago the late Professor Huxley published an address or 'Lay Sermon' on 'A Liberal Education,' which contains a famous passage illustrating the thought of life as a game of chess with an unseen player. ‘Suppose it were perfectly certain that the life and fortune of every one of us would, one day or other, depend on his winning or losing a *game of chess*. Do you not think we should all consider it a primary duty to learn at least the names and moves of the pieces; to have a notion of a correct opening, and a keen eye for all the giving and getting out of attack? Do you not think that we should look with disapprobation almost amounting to scorn, upon the father who allowed his son, or the State which allowed its members, to grow up without knowing a pawn from a knight?

‘Yet it is a very plain and elementary truth that the life, the fortune, and the happiness of every one of us (and more or less of those who are connected with us) do depend upon our knowing something of a game infinitely more difficult and complicated than chess. It is a game which has been played for untold ages, every man and woman of us being one of the players in a game of his or her own. The chess-board is the world;

the pieces are the phenomena of the universe; the rules of the game are what we call *laws of nature*. The player on the other side is hidden from us. We know that his play is always fair, accurate, and patient. But also we know to our cost that he never overlooks a mistake, or makes the smallest allowance for ignorance.'

'Suppose,' says Huxley again, 'that an adult man, in the full vigour of his faculties, could be suddenly placed in the world, and then left to do as he best might. How long would he be left uneducated? Not five minutes. Nature would begin to teach him, through the eye, the ear, the touch, the properties of objects. Pain and pleasure would be at his elbow telling him to do this and avoid that; and by slow degrees the man would receive an education which, if narrow, would be thorough, real, and adequate to his circumstances.'

But if this solitary man were joined to the society of others like himself, 'a new and greater world, that of social and moral phenomena, would be revealed. Joys and woes, compared with which all others might seem but faint shadows, would spring from the new relations. Happiness and sorrow would take the place of the coarser monitors, pleasure and pain; but conduct would still be guided by the observation of the natural consequences of actions; or, in other words, by the laws of the nature of man.'

To a great extent this has taken place in the history of humanity at large and in our own lives. But Nature's methods are often harsh and wasteful. Nature visits ignorance as sharply as wilful disobedience, and at her hands, incapacity meets with the same punishment as crime. The object of all human education, in the widest meaning of the word—in school, in college, in the Church, in the world—should be to make good these defects of Nature's education, and to lead us beforehand to act so that true happiness and welfare may be the fruit of our deeds.

Every scientific discovery, every mechanical invention, is only an application of this idea of the order of nature. The development of aircraft construction is one of the most remarkable recent examples. Every kind of mechanical construction illustrates the same thing. Engineers have to build a bridge across, say, the mouth of the river Tay, in Scotland, exposed to the full fury of the Eastern gale. It is built. It does not fulfil the conditions of stability required. At length a frightful disaster occurs. Then it is rebuilt to fulfil those conditions. No disaster occurs. It is always the same. The 'if' is always there.

Before proceeding, we may observe that this fact about nature throws a sidelight, though only a sidelight, on the problem of evil. Assuming, as we have every reason to do, that the whole universe is pervaded to its inmost depths by law and order in the sense defined, it is clear that we know only a small part of this realm of law; and yet we are in the midst of actual conditions whose laws we know not at all. In many respects we are like children playing with fire in a powder magazine. The children know not the laws of the substances around them. Then some disaster occurs—one of those calamities due to human ignorance, which illustrate the pitiless aspects of nature; and the natural man—we are all 'natural men' in the face of such things—asks 'Why?' or 'Why did God let it happen?' The first of the two questions is only too easy to answer: 'It happened because we did not know the conditions that were at work.' Ignorantly and innocently we set to work conditions which issue in this result. I take an illustration famous in history—the destruction of Pompeii. That Roman city was built under the slopes of a green hill as fair, and in appearance as harmless, as a hundred other hills among the sunny Italian mountains. There the city abode from generation to generation. True, there were one or two Roman observers of a scientific temperament who noticed something peculiar on the summit of the hill—masses of dark matter looking strangely like the ashes of fires long extinct. This was noted and recorded. True, again, after many generations mysterious subterranean rumblings were heard, apparently from beneath the hill. These were noted and recorded, but of course not in the least understood. Then, on a certain day, with scarcely any warning, and with vast detonations, the hill was rent asunder, and two cities were buried, one with lava and the other with red-hot ashes and other matter. Why did it happen ? From the point of view of scientific law, the answer is obvious. Given the knowledge on the part of the populace, the worst part of the tragedy would not have occurred. The knowledge was not there, but the conditions were. To a modern geological observer of experience, the mountain would have revealed its own story ; but of course it did not to those people. In our ignorance and innocence we bring ourselves into these tragedies.

What is the connexion of this with

the possibility or impossibility of 'miracles'? So far, no direct connexion is apparent; for we have only implied that the required conditions must be created and set to work in order that the result may issue from them. So far, we have no test for knowing what conditions will be set to work; any knowledge of what the total sum of conditions in the universe is, or of what results it will produce, is beyond our experience altogether. So far, it might seem as if anything might happen, and would happen, if the conditions appropriate to produce it were created. Why then do we assume that some things are probable and others not?

The answer to this question leads us to another aspect of experience, not specially limited to science for its understanding; an aspect which has moulded the mind and thought of every man born into the world. Setting science on one side altogether, we know that there is an ordered nature in the sense of a customary routine or way in which things happen. An effective summary of it is given in the 'rainbow promise'—'seed-time and harvest, day and night, summer and winter, life and death, shall not cease' (Genesis viii. 22, ix. 12). The customary routine of nature's ways, the experience of ourselves and of all mankind, has created the habit of expecting this routine to be maintained, and on the whole it is maintained. The expectation of its continuance is bred by experience and strengthened from age to age. Few of us, even if we clearly understood how to try the mental experiment, could really doubt that the sun will rise to-morrow morning. We might try to conceive the consequences of its not rising; but that is another thing. We know no conditions which compel us to believe that the sun must rise again. We know only the great customary routine in the course of which the sun has risen for ages. We also know, or rather we have substantial reasons for believing, that once there was no sun to rise; but none the less, we believe it will rise to-morrow. We cannot, again doubt that there is a normal span of human life, to pass beyond which is remarkable, to pass far beyond which we should say is impossible, because we have never seen it happen. That belief likewise is verified and strengthened by experience.

Leigh Hunt imagined the first man watching the approach of the first sunset, without having any experience of what it meant, and seeing only the passing of the great life-giving luminary and the coming of twilight and dark :

Mysterious Night ! when our first parent knew
Thee, from report divine, and knew thy name,
Did he not tremble for this lovely frame,
This glorious canopy of light and blue ?
Yet, 'neath a curtain of translucent dew,
Bathed in the rays of the great setting flame,
The evening star with the host of heaven came,
And, lo ! creation widened in man's view.
Who could have thought such darkness lay
    concealed
Within thy beams, O Sun ! or who could find
Whilst fly and leaf and insect stood revealed,
That to such countless orbs thou mad'st us
    blind ?

There must have been a time in human experience when this routine, assured to us, in the permanence of which we must believe, was by no means assured; and the great cosmic changes of the seasons, for instance, must have been the occasion of keen distress, to beings who only very slowly came to see that these changes were the normal course and not the breakdown of all things.

Is the 'normal course of things' after all the last word? Is this limited experience of ours that leads us to expect things to happen in a certain way, that makes us regard some things as improbable to the verge of the impossible—that makes us, for example, willing to believe that a man died at the age of fifty years, and very unwilling to believe that a man died at the age of five hundred years—is this the whole of our experience and knowledge of the possible and the impossible? Not so. It is a presumption based on experience, but it does not constitute knowledge that what we call the 'improbable' or 'impossible' thing can never happen. It is a presumption which every rational being assumes, but it is not knowledge. If there is any spiritual or moral value in the old superstition about the 'end of the world,' it is to remind us that this external routine may be destined to undergo great and startling changes.

We now seem to have found the root of what is meant by 'miracle': it is simply what people are not accustomed to. And to adopt this meaning, is to obtain at once a satisfactory working method of dealing with alleged deviations from the routine. In order to believe what we should describe as an 'improbability,' we require an unusual amount of evidence. Testimony of no unusual strength would suffice to convince you that a neighbour had died at the age of fifty, because this is in the course of experience; but very strong testimony would be required—perhaps no amount of testimony would suffice—to convince you that a man could live for five hundred years. How much evidence, again, would be required to convince you that a man had moved a table without physical contact? Certainly a great deal more than would be required to convince you that he moved it by pushing it. Once more, the evidence needed to make you believe that Jesus Christ walked on the water must necessarily be a great deal stronger than what is needed to make you believe that at a certain period he trod the soil of Palestine—though even that raises the problem of his historical existence. And we know that the evidence for the alleged 'walking on the water' is altogether inadequate.

The principle implied in these illustrations is evident. The strength of the evidence must be directly proportional to the unusual character of the alleged event. The same principle is involved in David Hume's famous argument against the credibility of miracles. Hume pointed out that one of the characteristic features of our experience is the fallibility of human testimony. Its fallibility is to be expected—it is part of what we have called 'the routine.' But a miracle, from the very meaning of the term, is extraordinary, outside the routine. ‘Very well,’ says Hume quietly: ‘Of two things, which is the more probable? Here is the story of an extraordinary event of the nature of a miracle: which is more probable—that the event actually took place, or that the testimony concerning it is untrustworthy?’ In the light of experience, he judged that the unreliability of the testimony is more probable than the truth of the story.

This argument caused considerable searchings of heart among the orthodox theologians of Hume’s day. So far as I know, not one of them was able adequately to deal with it. Hume himself tells how, in conversation with a clever young Jesuit priest in Paris, he ‘tried the edge’ of his argument on him, with special reference to the narratives which the Roman Church has preserved in the ‘Lives of the Saints.’ The priest seemed rather gravelled by the argument; after a few moments, however, he observed, ‘But, if that is valid at all, it is equally valid against the miracles recorded in Holy Scripture!' Hume of course knew this; but he affected to assume that this observation disposed of his argument, and let it pass.

Hume's argument only points to the conclusion that the stranger the alleged event, the stronger the testimony must be. We should be rationally compelled to accept the most extraordinary story, if the evidence on which it rested were impregnable. The notion of 'miracle' comes into conflict only with our custom-bred belief in the external routine of nature's ways. We do not forget how belief in that routine has misled even men of science, and has made them blind and deaf to actual facts. The story of the advance of science is largely a story of the conquest of this prejudice in favour of the ordinary, by adequately attested facts of an extraordinary kind. Hence we must be cautious in these matters; but we may abide securely by our principle: if you require me to believe this extraordinary thing, then you must produce evidence as strong as the thing is strange.

The whole aspect of our experience suggested by words such as ‘normal,’ ‘customary,’ ‘ordinary,’ is distinct from the technical definition of scientific law with which we started. This does not exclude miracle, which does not contradict law, though it does contradict routine. A law of nature, therefore, requires to be expressed in the form of a supposition or conditional statement: *if* certain things happen, then they must produce certain other things—wherever and whenever the causes occur, then the effect must follow.

The law only ‘comes into operation’ when the causes actually occur, in the series of events, at some particular time and place. But it is conceivable that the causes might only occur once in a thousand or a million years; then the law would only come into operation once in all that time. The result would be what is called a ‘miracle,’ but there would be no 'violation of law'; there would only be a violation of routine. An event might happen, the like of which had never been heard of within the memory of man, and yet it might be an exact consequence of conditions under law. This would be the instinct of scientific observers in such a case. They would make the most accurate record of the event in all its circumstances, and preserve it in the hope that subsequent discovery might throw light upon it, or that at some time it might happen again. They would regard it as due to the operation of some complicated law or laws hitherto unknown.

The truth is that this confidence in the universal reign of law, and in the consequent rationality of the universe, is in the strictest sense of the word an act of faith on the part of science; an act of faith, because though it has always been verified in detail hitherto, every new undertaking of science is an anticipation of its further verification in regions as yet unexplored. Some writers, unwilling to acknowledge anything of the nature of ‘ faith ’ involved in ‘ science,’ have urged that what we have before us is only an argument from analogy. But what exactly is an argument from analogy, and on what does its force depend? It is an argument from one case to another resembling it in some important facts—the inference being that the latter will resemble it in other respects also. The sole ground for trusting any such inference is the assumption, made beforehand, that conditions connected with a known result in the one case will show the same result in the other case; and this is an application of the fundamental act of faith on which science rests—the rationality of the universe.

IV

THE REVELATION OF LIFE

(I) LIFE AND THE LIFELESS

WE have reached a conception of God which implies some definite and important results. It is the conception of a Power from which all things proceed, and which stands towards the world and towards ourselves 'in the same relation in which the anthropomorphic Creator was supposed to stand'—a Power to which, as Spencer puts it, 'we must ascribe not only the phenomena themselves but the laws of their order,' and which thus provides the conditions for unlimited progress in knowledge, and in the control of nature through knowledge. These conditions are provided because we have a universe of law and order, which we can gradually succeed in learning and so mastering and controlling. But this is not the conception of God which is required by and implied in religion. Religion, we repeat, does not exclude these implications of science and of the distinctive methods of science; she goes beyond them.

We can indicate with some precision the difference between the two conceptions. The universe does reveal itself to us in a certain way—it reveals a realm of law. Does it reveal itself to us in any other way? It reveals not only a system of impersonal law, but also a world of real changing beings—inanimate things and living beings, including human beings: and human life we know from the inside.

Hence the difference between the God of Religion and the God of Science arises from the fact that we get the idea of God as religion requires it by considering what is revealed in humanity. Science deals with humanity as she deals with the world of non-human nature at large—that is, with a view to the discovery of general laws; but there is more in humanity than the reign of law. This gives us a clue for dealing with the great question which yet remains, the answer to which makes all the difference between belief in God as an impersonal system of law, and belief in God as Spirit, Wisdom, and Love. We know in any case that the Infinite and Eternal Energy, realizing itself ever through inviolable law, does exist. Its existence is implied in all human knowledge and achievement, and we can never get away from it. The great question that remains is as to its character. Is it good? In other words, is it God? And if we may believe this, then what is the relation between God's goodness and man's goodness?

There is, however, an intermediate question which is both actually and historically important. The determination of it is not vital to religion; but it is connected with the understanding of scientific method on the one hand, and the understanding of religion on the other; hence I have called it an 'intermediate' question. The universe reveals a world of living beings as well as inanimate objects. Let us provisionally leave on one side those qualities of life which are *distinctive of mankind*, and ask, What precisely is meant by a living being, as such? What qualities or characteristics has a living being, which a non-living thing has not? The answer to this question brings out the important fact that the system of impersonal law, with which science deals, is not limited to laws of a merely mechanical type.

We may approach the question by contrasting life with the lifeless. One of the characteristics of 'dead matter,' which is so obvious that we scarcely ever notice it, is this: Whatever an inanimate object does or whatever happens to it seems to be entirely the result of external forces or circumstances; the rolling stone goes on rolling until friction and other obstacles have brought it to rest, and it stays at rest until something stirs it again. The case is the same with all kinds of motions up to those of the most complicated machines. Every part moves in the way it does, only because, and as long as, other parts in contact with it move it or control its motion. This quality, or incapacity, of matter is called *inertia*, and is generalized in the form of a law that the state of motion or rest of any material body can be altered only through some external influence due to another material body or other bodies in motion or at rest. All action of which this law holds is technically termed ‘mechanical.’

We are accustomed in ordinary thought and language to distinguish between machines and living beings; and we shall see that the distinction points to an important truth. For a living being must confront the world around it with an independence quite different from that of an inanimate object. Its actions are not merely executed in response to changes in surrounding circumstances; it is not merely irritated into acting. It has to search, to work, and even to fight to preserve its own existence and the continuance of its kind. It must be capable of initiating actions entirely from within, unprompted by any changes in the environment. The facts seem to point to the conclusion that every living being possesses an inner centre and source of activity which (however little else we may know about it) is at least such that its activities are co-ordinated, as it were, with one another, and are capable of being systematically directed to this or that object; and on this systematic direction the creature's existence depends.

Does life, then involve more than merely physical forces? We are told that modern physiology has discarded the old mythological conception of a 'vital force' to explain the distinctive characteristics of organic life; that it has devoted itself to an analysis of the particular factors in the vital process, and with regard to these has discovered only mechanical, physical, or chemical agencies at work. The circulation of the blood, for instance, is a question of hydro-dynamics, i.e., it is to be explained by the general properties of liquids, just as the circulation of water in pipes through a house can be. In some of our museums you may see a glass case containing chemical substances (elements and compounds) parcelled out in the exact quantities in which they occur in the normal human body—so much carbon, so much water, and so on—no substance contained in the living body is unrepresented, and life is said to be an 'extraordinarily complex' combination of these substances.

The older investigators were in the habit of calling in 'vital force' as a sort of miraculous agency to account for phenomena that baffled their powers of natural explanation. It was conceived as interfering, as if from outside, with otherwise mechanical processes. Such a conception evidently could contribute nothing to the advancement of knowledge. Hence mechanical explanation, or the resolution of physiology into physics, became the watchword and ideal of the best workers. It is evident that so far as ‘ Vitalism ’ adduced this so-called force to explain the distinctive features of organic life, it was a case of that illusory explanation which consists in merely stating a fact and giving it a name, and then parading the name as an explanation—like the well-known explanation of the soporific effect of opium as produced by a *vis dormitiva*, a ‘ dormitive force,’ inherent in that drug. But in so far as ‘ vital force ’ was not intended as an explanation of, but as a name for, a certain class of processes which could not be expressed in purely physical or mechanical terms—to indicate the difference and point out the need for explanation—to be a ‘ finger post to the unexplained ’—so far, the vitalists were right.

It is also true that the most important advances made by physiology were made by those whose watchword was, to resolve physiology into physics. A quarter of a century ago, Professor Burdon Sanderson pointed this out, in an address to the British Association for the Advancement of Science ; and he showed clearly what was the meaning of the fact. The process was really one of specialization within the enormously complex region covered by the term ‘organic life.’ ‘It was found,’ said he, ‘that each of the processes which go to make up the complex of life required separate investigation; and in each case the investigation must consist in splitting up the process into its constituent facts, and thus determining their relations to each other, to the process of which they form a part, and to the conditions under which they occur. There was a leading idea in the minds of those who were chiefly instrumental in bringing about this advance: however complicated be the conditions under which vital processes manifest themselves, they can be split into factors which are identical in nature with those of the non-living world: so that the analysing of a vital process into its physical and chemical constituents, so as to bring these constituents into measurable relation with physical and chemical standards, was found to be the only way of investigating them that could lead to satisfactory results.' Professor Sanderson argued that the change from the ideas of the vitalists was much more in method than in doctrine or theory, and when properly understood involved no assumption as to what life is or is not. The earlier writers had devoted themselves to considering the more theoretical aspects of organic life in general, and to discussions about precisely what differentiated living from non-living matter. The advance was 'a frank abandonment of theory for fact, of speculation for experiment.'

There are, however, many investigators who are not content to have 'the resolution of physiology into physics' regarded only as a method, convenient and even provisionally necessary; they base on it a theory as to what the nature of life actually is, pointing to the conclusion that the organism is only an extraordinarily complicated machine, and therefore is to be regarded as altogether the product of mechanical agencies. To a certain extent this question is still *sub judice*; but there seems to be no prospect of any conclusive experimental demonstration that living beings are really nothing more than complications of non-living matter.

In some quarters the assumption appears still to be made, that the mechanical explanation of life must be true, because it is useful in the attack on theology and is one of the corner-stones of metaphysical materialism; but this attitude of mind can scarcely be described as 'scientific.' Failing experimental demonstration to the contrary, we must take the obvious differences between life and the lifeless at their face value. It is true, on the one hand, that particular factors in the vital process, when isolated, may be made more intelligible by being treated as purely physical and chemical; but it is equally true, on the other hand, that the co-ordination of these factors involved in their adaptation to the central purposes of life, have not been so explained. The fundamental characteristic of organic life is, that the activities of each living creature are made in the interest of itself as a whole.

Let us then state fully this principle that life must at least involve 'adaptation.' (1) It signifies that every organism is a unity, i.e., not a mere aggregate of parts which are capable of existing separately without losing their character, but a systematized unity of members, each of which, as the organism develops, appears with a distinct place and function. Each member is useless apart from the whole; an amputated limb is not even a limb. The unique way in which these members belong together—a way entirely different from that in which the parts of a material body belong together—is what is meant by the unity of the organism. (2) It also signifies that every organism is able to maintain itself—the 'unity' involves within it some source of activity such that it is self-sustained: activity, as Professor Sanderson remarked, is an essential attribute of the organism, indispensable for its growth, and not merely a series of incidents in that growth. This characteristic appears first in the way in which the creature adapts itself to changes in the surrounding circumstances which affect it. Yet not only must the creature be capable of thus responding to its outward experience, but it must also be capable of acting in advance of its experience; it has to search, work, and struggle for the means of existence. For the animal's experience is in part made by its own activity; in learning 'from experience' it is really learning from the consequences of its own acts—it makes experiments, so to speak, and learns by trying; and the 'trying,' therefore, cannot be prompted merely from without.

If, then, there are such real and great differences between living beings and lifeless objects, as we know them now, and if there is no conclusive experimental evidence that the former are only complications of the latter, then it appears to be simple or rather complex nonsense to talk of life having been ‘ evolved ’ from matter in past ages—unless ‘ matter ’ is something far more than we ordinarily take it to be, and far more than such sciences as physics and chemistry assume it to be.

V

THE REVELATION OF LIFE

(II) The Lesson of Evolution

THE theory of evolution may be understood in a wider or in a narrower sense. According to the latter, it is mainly a biological theory, and is an attempt to explain those fundamental and apparently ineradicable differences among living beings which are called *species*; and the human race, viewed on its bodily side and measured by its physical organization, is merely one among these species. In its wider meaning, evolution, as a theory, formulates a probable or at least a possible course of the great secular stages in the history of the material universe as a whole. To this, reference has already been made; and we are not for the present further concerned with it.

How did these differences among

living beings arise ? The characteristic answer of modern science is, that they arose gradually in the course of time under natural conditions. As the late W. K. Clifford tersely put it—'at some stupendous distance of time, all species were alike—mere specks of jelly ; they gradually diverged from one another and became more and more different, until they attained the almost infinite variety that we now find.' Thus the whole problem of evolution is first to ascertain precisely what is meant by saying that the present forms (including man) were 'developed from' or 'evolved from' earlier and more rudimentary forms, and then to ascertain as exactly as possible what were the natural means by which this development was brought about.

When we call a group of animals or plants a species, we may imply thereby, either that all these animals have some common peculiarity of form or structure ; or we may mean that they possess some common functional character. Differences of form or structure we may recognize with comparative ease—as between the horse and the ass, for instance, or the cat and the dog. The functional or physiological differences are more fundamental. Without entering into details which are unnecessary here, it is sufficient to say that animals of different species as a rule will not pair together so as to produce offspring: or, when they do pair together, the offspring are not generally capable of fertile reproduction, among themselves or with either of the parent species. A true species, on the other hand, is capable of fertile reproduction through its sexes for an indefinite number of generations, not only within one variety of the species but between different varieties. Naturalists formerly supposed that this barrier always existed between species; and that, although new varieties might arise within any one of them, the species themselves must always have been as distinct as they are now; only a limited range of exceptional cases was recognized, where modifications were evidently acquired and transmitted such as could fairly be regarded as constituting a few new species. In the main, however, species must have arisen separately. This theory, of course, harmonized with the Mosaic account of the creation.

A contrary theory, in different forms, had long been before the world; but Darwin and Wallace originated a great forward movement when they adopted the hypothesis that all races of living beings have come of one stock or one ancestry, and suggested an explanation or partial explanation which at once removed the theory from the region of speculation and made it a living factor in modern thought.

Before taking a further step, we are logically bound to bear in mind the distinction between the process of organic evolution as an historic fact, and the cause or causes whose operation is regarded as contributing to the explanation of the process. In reality, of course, there is no separation corresponding to that which our thought makes. Existence of every kind is strictly continuous. None the less, just as we may and must distinguish the actual military operations of the European war from the constant provision of munitions and supplies of all kinds required for the maintenance of those operations, so in reference to evolution we must distinguish two questions—first, has the history of life on this earth been such as is implied in the theory of descent from a common ancestry ? and, second, how or by what means has this descent with modification been brought about ?

That the theory of descent with modification (as distinguished from any particular explanation of the means by which it has been brought about) is true, is a conclusion which can now be supported by an array of evidence almost amounting to complete proof. The converging lines of evidence may be very briefly indicated. (1) A real evolution has been and is going on among domesticated animals and cultivated plants ; and 'if man has been capable of fixing all these varieties in a short time, what may not nature have effected in a very long time ?' (2) The classes and sub-classes of the animal kingdom, when naturally arranged, may be exhibited in the form of a genealogical tree, and convey an impression of affiliation which we do not get from any classification of inanimate objects. (3) The great diversity in the external form of particular organs in the living body, only conceals fundamental similarities of structure. As Professor J. Arthur Thomson has put it—'If we take, for instance, a series of forelimbs among vertebrates—the arm of a frog, the paddle of a turtle, the wing of a bird, the foreleg of a horse, the flipper of a whale, the wing of a bat, the arm of man—we find a detailed resemblance not only as regards the bones, but as regards muscles, nerves, and blood-vessels ; and it is difficult to suggest any interpretation except that the resemblance is due to relationship.' (4) In man and lower animal forms we find numerous 'vestigial organs'—the dwindling remains of structures presumably well developed in ancestral forms. The ear-moving muscles in man are only one out of a multitude of examples. (5) Nature's record in the fossil-bearing rocks shows the gradual appearance of higher and higher forms: 'at a certain stage in the history of the earth, all animals were invertebrates; then fishes appeared, then amphibians, then reptiles, then birds and mammals.' The rock-record also reveals a number of missing links, of which the most celebrated is the *archæopteryx*—a reptile with wings, a bird with teeth. In many cases the fossil-record is complete enough to provide a continuous genealogy uniting various species. (6) The geographical distribution of the animal kingdom, in the present and the past, indicates a gradual dispersal from centres where they had their original 'headquarters.'—These condensed statements give a very imperfect indication of the strength of the evidence in question; but for much fuller illustrations and references, the reader may be referred to such books as the late Professor

Milnes Marshall's *Lectures on the Darwinian Theory* and Professor Thomson's *Darwinism and Human Life.*

It is well known that Darwin's decisive contribution to the theory of evolution was the discovery that ' natural selection ' is at least one of the principal factors through which the process has been brought about ; and this was suggested to him by an extensive study of the variation of animals and plants under domestication, where the breeder or cultivator selects variations which happen to occur, and fixes them by mating the appropriate pairs in order that the desired variation may be transmitted to the offspring. Natural selection was indicated as the process in nature by which variations, favourable to the existence of the animals so endowed, are for that reason ' selected ' and transmitted.

The theory of natural selection has a threefold foundation, in ' the struggle for existence,' ' variation,' and ' heredity.'

(i) The last-named factor, and the problems raised in connexion with it, do not concern our immediate purpose here. It is only necessary to observe that the word ‘ heredity ’ is ambiguous, and is often very loosely used. True physiological heredity signifies solely what is transmitted by the male and female germ-cells through the act of conception ; and it is only in this connexion that the controversy as to the inheritance of acquired characteristics has arisen. But the offspring is a distinct individual for some time before birth—and influences from the parent organism may influence its constitution and tendencies favourably or the reverse in many ways. Such influences can be described as ‘ hereditary ’ only in a wider and looser sense. And above all, we must distinguish *physiological* from *social* inheritance. In all questions arising out of the history of human society, the social factor is of much greater importance than the physiological. Social heredity, as we may metaphorically call it, depends on the education and training and social atmosphere and environment in which individual minds grow, and by which their characters, ideas, and opinions are influenced.

(ii) Darwin used the term 'struggle for existence' in a large and metaphorical sense. It is really a very complex idea, applicable over a wide range of varying fact; but there could be no such 'struggle' in any shape or form, unless living beings were animated by a radical instinct expressing itself in the constant endeavour to maintain and preserve their own existence and the continuance of their kind, and to secure safety and comfort for themselves and their offspring. The importance and significance of this 'radical instinct,' as we have called it, can scarcely be overstated; and we shall find that it is involved in the whole story of evolution. It has been said that 'hunger and love' are the source of all the world's problems.

Some of the principal forms of the struggle for existence may be distinguished. (1) We have competition among individuals or fellow creatures for something of which there is a limited supply—food, or foothold, or breathing-space, or whatever it be. It was well exemplified in the struggle among the suffocating victims in the Black Hole of Calcutta. This may be commended to the consideration of people who talk vaguely about 'nature's ways' as an invariable model for human imitation. There is no bloodshed among plants, but there is overcrowding, crushing, starving, smothering, strangling; and the survivors are the 'fittest' *for those special conditions in which they survive.* The reader of Robert Louis Stevenson will remember a powerful statement of this—noteworthy alike for its accuracy and its poetic force—in *The Woodman.* (2) We have competition among different species or kinds, as between carnivorous and herbivorous animals. Here the victory will lie with the more effective and the more prolific. Among plants we may illustrate from the struggle between coarser and finer grasses, for instance, after a grass-fire; when the victory often lies with the coarser, whose survival proves them to be the 'fittest.' (3) We have lastly a 'struggle for existence' which involves no competition between fellow creatures; where the struggle is against adverse natural conditions. This has been the determining factor to a great extent in the history of human civilization, since man alone by knowledge has learnt to control and master nature. He is indeed 'nature's insurgent son,' as Professor Ray Lankester has said in his striking book on *The Kingdom of Man*.

Nevertheless the 'struggle for existence' includes more than competition. It is of profound importance to understand that in nature competition is balanced by co-operation, and would be impossible without it. Spencer has well said, in the discussion of egoism and altruism in his *Data of Ethics*, that self-sacrifice is no less primordial than self-preservation: 'If we define altruism as being all action which, in the normal course of things, benefits others instead of benefiting self, then, from the dawn of life, altruism has been no less essential than egoism.' What Spencer laid down in principle, Kropotkin showed in detail in his well-known book on *Mutual Aid as a Factor in Evolution*. The truth is, that the struggle for existence, as a factor in evolution, and as a source of progress, must be given a wider meaning than the words literally suggest. It expresses the reaction of living creatures against their limitations and difficulties; and this reaction includes, on the whole, both struggle for others and struggle for self. The root of the whole process is that the living creature has a will of its own—a 'will to live.' Life is an endeavour; it expands, it presses against limitations.

(iii) In the case of offspring, along with many resemblances to the normal type represented by the parents, *variations* may at any time occur, departing more or less from the type; and they are transmitted. Suppose, then, that an animal is born with some new quality which gives it a slight advantage over others of its kind in the struggle for life

—a capacity which facilitates in some special way the general activity on which its existence depends, and which therefore makes life easier for it in the circumstances in which it has to live: the transmission of this quality would produce a race capable of surviving when other less favoured races had passed away. This is a typical instance of what is meant by natural selection.

It is a purely physical, we might say almost a mechanical process, which can only bring about the extinction of creatures endowed with qualities less fitted to meet the urgent demands of survival under the actual conditions of life. Unless profitable variations occur, natural selection can do nothing. Hence Darwin's work opened up to naturalists, among many other problems, the necessity of a fundamental study of variations. Darwin himself sometimes spoke as if variations had been due to 'chance'; but it has been shown, many times, that by this expression he only intended to acknowledge our ignorance of the cause of each particular variation.

It is not open to reasonable doubt that natural selection is one of the co-operating factors in the evolutionary specification of life. But anyone who supposes it to be settled that natural selection is the sole means of modification, or even the predominant factor in evolution, may be recommended to consult the monumental volume entitled *Darwin and Modern Science*, issued by the Cambridge University Press in 1909, in commemoration of the centenary of the great naturalist's birth, and containing twenty-nine essays by specialists in the various problems arising out of his work. For our present purpose, the most instructive of these is that of the nature and origin of variations.

Darwin assumed that the variations which occur in connexion with reproduction, at any rate those which are capable of being permanently transmitted, are continuous, and that each is slight in amount; transmutation is the result of the continuous accumulation, through heredity, of the small variations which survive. He looked at things ‘through Lyell’s eyes’; and the main principle of Lyell’s geology was to explain changes, in themselves large in depth and extent, as the result of the accumulation, through a very long time, of small successive increments of change (the ‘uniformitarian’ as opposed to the ‘catastrophic’ theory). This is unquestionably one of nature’s ways of achieving vast results; and the fact is of great significance for the appreciation of human endeavours.

Now there has been an accumulation of evidence to show that the variations on which evolution depends are not always slight in amount. Twenty-five years ago Bateson published an exhaustive work on this subject. There is real evidence of the appearance and continued procreation of abrupt modifications of structure; an animal may be born which differs from its parents sufficiently to constitute it a new variety or even a new species, and which is endowed with the power of impressing its likeness upon its offspring. And since every organism is a self-maintaining unity of co-ordinated parts, a variation in the function of any part may affect that of others, and thus, as it were, may increase itself. More recently this matter has been specially studied under the influence of the Dutch botanist De Vries, who has offered evidence to show that in some forms of plant life, new varieties are produced from existing forms by sudden leaps. This is the celebrated theory of ‘ mutations.’ There is also a considerable amount of evidence to show that among domesticated animals such ‘ mutations ’ do occur, and that new varieties have been produced by taking advantage of them in breeding and cultivation.

Whatever may be the future of this and other equally interesting theories which are now under examination by special students of these subjects, it seems clear that the question of the nature and origin of variations takes us to the source and root of the whole evolutionary process. And when we look back at the past, the transitions are seen to be specially remarkable at certain points in the unfolding chain of life.

Two of these must be indicated. Geological evidence shows that creatures having lungs and capable of living on dry land were evolved from creatures that could only live under water; and also that creatures capable of flying were evolved from purely reptilian forms of life. In each of these cases we have the evolution of organs adapted to a sphere of life altogether different from the earlier sphere, and indeed opposed to it, as life on dry land is opposed to life under water, and moving through the air to crawling on the earth. How did the first beginnings of these organs arise?

It has been well said by one of our ablest thinkers that the whole story of evolution is typified in Abraham, the father of the faithful, who 'went out, not knowing whither he went.' Evolution and natural selection and the struggle for life are possible only because what we may call a spirit of hopeful endeavour possesses everything—

because there is a continuous impulse pervading every creature, organism or animal, such that it acts spontaneously, and learns by acting, and in learning qualifies itself for a new sphere of life with which come new experiences and fresh enterprises. The water-creatures did not first acquire lungs and then proceed to live on dry land. There was nothing in past experience to justify the first attempts at breathing or moving through the air. It can only have been because in and through these and all creatures there is working a power which is more than their own individual effort—a power without which we human beings could never have come into existence. By this, the world of life has been all unconsciously moulded.

May we look for traces of it in the lives of men ? If so, it must mean something for us ; we cannot be unconsciously moulded by it ; it must speak to us ; and we must hear its voice.

VI

THE REVELATION OF PURPOSE

WE have followed the clues which are to be discerned when the methods and aims of science are examined; and we have reached the summit of the 'watershed' whence we may look out over the expanse which religion has marked out for her own, and which extends away beyond the region marked out by physical science.

If we are to obtain any clear view even of the main outlines of this expanse, we must press much further a principle already implied in the way in which we have been using the word 'revealed' when speaking of the Infinite and Eternal Energy named by Spencer. With curious inconsistency this thinker repeatedly says that the Infinite Power is 'inscrutable' though it is 'everywhere manifested.' The word itself is noteworthy, as implying that which can be ‘ struck by the hand,’ hence the palpable, the obvious, the definite. Evidently, so far as anything is ‘ manifested,’ it is *not* ‘ inscrutable,’ and is so far *known*.

We have already pointed out, both in reference to the material universe at large, and to the world of life in particular, that scientific thinkers are learning to regard everything as an active productive process, so that to the question, ‘ What *is* it ? ’ the first answer must always be, ‘ What it is, is shown in what it does ’ ; and ‘ What it does ’ means especially ‘ What it can produce or bring forth.’ A thing is what it does : this is the shortest and plainest way in which the meaning of the new principle can be stated. It must, of course, be added that if we want to know *all* that the thing is, we must know all that it does and is capable of doing. We may use the same principle in order to understand the human mind and its various faculties, to understand human nature, to understand the material world, in a word, to understand the universe and all that it contains.

Another way of stating the principle is that *the effect cannot contain more than the cause which produced it*; only here we must remember that the word 'cause' is used in a fundamental way, as signifying, not merely the antecedents but the *fons et origo*, the very source and ground of a thing. 'That which is produced' is our only clue to the knowledge and understanding of 'that which produces.' It is clear that this principle is of very great importance; and for this reason I have added, in a note appended to this chapter, some alternative statements of it, since the comparison of different expressions of a fundamental principle is often a valuable means of grasping its real significance.

We must therefore judge the great world-power by what it has produced.

It has produced a world whose structure rests upon a foundation of law—law, uniform and inviolable, of whose reality every advance in knowledge is an additional verification; an 'act of faith,' we have called it, assumed before in advance, and none the less actually verified in every achievement that science makes.

There is a well-known ancient hymn concluding with the words, 'O God, in thee have I trusted; let me never be confounded.' Many scientific workers would refuse to say that, and object to what is implied in it; but this at least they must say—this at least science does say and always has said: 'O Universe, in thee have I trusted, and I have never been confounded.' Science proceeds, and can only proceed, on the postulate, assumption, trust, faith—call it what we will—that the world will not perpetually baffle our efforts to understand it or put us to permanent intellectual confusion. And this trust in the universe that it is rational is one kind or one direction of trust in God. So far, science and religion are at one. We are told that the Emperor Napoleon remarked to the great astronomer and mathematician Laplace, 'They tell me

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you have written this large book on the Mechanism of the Universe, without saying a word about the Creator.' Laplace replied, ' Sire, I am not aware of needing any such hypothesis.' Perhaps not, for his purpose. But he needed the other ' hypothesis ' or trust that we have spoken of. And this is not so unrelated to ' the hypothesis of God ' as he thought.

It is never easy for men to realize the presuppositions of their own thinking—the assumptions which they take for granted without consciously representing them to their own minds. The rationality of the universe, in the sense explained, is a presupposition of science. It must be granted before science can begin. Many scientists do not realize the magnitude of this act of faith. They may even deny that there is any act of faith at all. This only shows that the faith is so instinctive that they are not conscious of it when they act upon it.

The ' Infinite and Eternal Energy ' has thus revealed itself as a rational order. We only express a further development of the same truth when we say it has revealed itself as a purposive power : not purposive after the analogy of a human manufacturer, but purposive in a larger and more comprehensive sense. From the beginning it has followed a pathway which has led to the attainment of definite results. We can trace *direction and method* in the evolution of life. By this we mean that the 'factors of organic evolution' have produced results which *could have been foreseen from the beginning by an adequate intelligence.*

We have seen that at every stage of evolution the life-process involves effort to maintain itself and master the surrounding 'brute matter.' Further investigation shows that we have here three main types of adaptation to the environment; torpid vegetative activity, instinctive activity, and conscious activity involving feeling, perception, and, ultimately, reason. These are three different though not wholly distinct fashions of gaining a livelihood and a place to live in upon earth.

Evolutionary science shows that the vegetative, the instinctive, and the intelligent types of life are three divergent directions of one process which has divided itself, more or less, but never completely, as it advanced and increased. Hence, while vegetative activities may be found in animals and man, and instinctive tendencies in man, yet in fact we find the three divergent series, in one of which the *dominant factor* in life is vegetative torpidity; in a second, instinct; in a third, conscious intelligence.

Plants have no nervous system; but what corresponds to it, in the line of vegetable life, is the power possessed by the plant of disengaging the carbon and nitrogen from its environment by means of the sun's rays.

The characteristic of the animal is movement, and (inseparably connected with this) a nervous system. The evolutionary line in which instinctive movement is the dominating principle is that which culminates in the 'hymenopterous' or membranous-winged insects, such as ants, bees, or wasps. In them we see, almost pure, the nature of instinct. Embedded in the structure of their bodies, it provides them with a skill in adaptation to the conditions of their lives more perfect than the finest intelligence could create.

The central branch of animal life culminates in the conscious intelligence of man. Here life proceeds to deal with the surrounding world not directly through the organs and limbs of the body, but indirectly by means of manufactured things. In truth man, while belonging to the animal series in evolution, is really a branch so distinct and highly specialized as to constitute a difference in kind. Consider the human brain. 'It is made,' says M. Bergson, 'like every brain, to set up motor mechanisms, and to enable us to choose among them, at any instant, the one we shall set in motion; but it differs from other brains in this, that the number of mechanisms it can set up, and consequently the choice that it gives as to which among them shall be released, is unlimited; and from the limited to the unlimited there is all the difference between the closed and the open.'

Man, able to stand upright and use his forelimbs as hands, differentiated from all other living things by his brain as well as his physical form, has been able to master the creatures around him, though inferior to many of them in strength and movement. His dawning intelligence may have been only a superior kind of cunning, yet that cunning was the first stage in a line of growth which resulted at last in the capacity to produce those great intellectual achievements of human genius which have enriched the world. And as man has grown thus through the ages as thinking, so he has grown in his moral life, at whatever cost, always making for the same result, the working out of a higher type of life with possibilities of nobler achievement. The whole story is one of the attainment of actual results which, in being attained, are combined into yet more complex and significant results.

This great fact only stands out more impressively if we limit our view to the periods covered by the historic records of our race. Human actions, both good and evil, are made to bring forth results whose issues are greater than the agents themselves could even have imagined. Different human actions are made to work together to bring about results which the agents never foresaw, whose importance would not have been understood if they had been foreseen. The evil deeds of bad men are made to contribute to ends unperceived by the agents and quite opposed to their purpose. The tragedies and heroic sufferings of human life, and its failures and disappointments, are made to contribute to the good of the world.

No more impressive illustration can be found than is afforded by the ever-renewed spectacle of disappointed hopes and designs, well-meaning and high-motived, which have ended only in failure. In this aspect of it, the lesson is written for us large and plain in the life of the discoverer of the Western

Continent. Columbus, whose faith was sublime as compared with the general mind of his age; whom most men believed at first to be insane; sailing west to discover a route to the fabled wealth of China and the Indies, stumbling upon a whole new world, yet knowing it not; persistently clinging to the false idea that he was almost at the gates of those cities of incredible riches, and dying at length brokenhearted because so little, as he thought, had resulted from his stupendous dream—this man is not only a good but a typical illustration of how men in failing may become unconscious instruments of ends greater than all their dreams. What was there, in his trumpery vision of gold and gems to be had in the East almost for the asking, that can be compared with the life that now peoples that western world, and the contributions which that life has made, and will make, to the welfare of mankind?

In all history, two of the bitterest human disappointments have probably been the expectation of the Jews that their own nation was to be exalted as the supreme source of light and leading for the peoples of the world; and the expectation of the Apostolic Church that Christ would soon return to earth in person, to the victory of the faithful and the confusion of his foes. The Jewish hope was disappointed; but through that hope the House of Israel did a greater work for the world than they knew. What was there in the Jewish dream of the glorification of a narrow people, to be compared to the reality of the invisible Kingdom in our midst, sprung, as it mainly has, from the stream of spiritual health and healing that flowed from the Man of Nazareth—the last and greatest of Israel's prophetic sons? What was the hope of the Master's speedy return to earth to crush the persecutors of the faithful, in comparison with the real coming of his spirit in the minds and hearts of his disciples?

In every case the surpassing greatness of the later event is the outcome of a human dream, held and believed in with an intensity which only grew deeper as the events of the world seemed to shriek against it, yet killed at last by the inexorable facts, and turned to vaster issues by the Power who has all the worlds in keeping.

For, indeed, the Great Plan and Purpose, whose signs we can detect in the history of the world, is surely the work of a Great Mind. We can use no other words to express our meaning: a Mind whose width and depth and resources are great in proportion to the width and depth and richness of the Great Plan. We know that we are partly wrong in using such words as the mind or will of the Power whose work is the purpose of the world. We are partly wrong because our ordinary words are being used to express something too great for them fully to express. All our beliefs and all our speech concerning God—however wise and thoughtful we try to be—are partly wrong. They are 'provisional'; but they are not useless. *They are far more true than any unbelief or silence.*

NOTE

The principle of inference on which the argument of the preceding pages is based has been formulated, more or less explicitly, by many students of the philosophy of religion. Three illustrative extracts are appended.

Martineau, writing in 1874, quotes Tyndall's dictum that 'we must radically change our notions of matter' and discern in it 'the promise and potency of all terrestrial life,' and then observes: 'If the measure of the required change in our notions had been specified, the proposition would have had a real meaning and been susceptible of a test. Without this precision, it only tells us, Charge the word with your *quaesita*, and I will promise to elicit them explicitly. . . . Such extremely clever matter—matter that is up to everything, even to writing Hamlet, and finding out its own evolution, and substituting a molecular *plébiscite* for a divine monarchy of the world, may fairly be regarded as a little too modest in its disclaimer of the attributes of Mind. Nor is the fallacy escaped by splitting our *datum* into two, and instead of crowding all requisites into Matter, leaving it on its old slender footing, and assuming along with it *Force* as a distinct entity. The two postulates will perform their promise, just like the one, on condition that you secrete within them in the germ all that you are to develop from them as their fruit.' (*Religion as affected by Modern Materialism*, pp. 14, 15).

In a striking Essay on 'The Universe as Philosopher,' Principal Jacks, of Manchester College, Oxford, asks: 'How comes the universe to provide room, not for intelligence in general, but for philosophic intelligence and the philosopher's point of view? . . . When Huxley discovers that Nature is indifferent to the moral needs of man, what is that in Huxley which makes the discovery, and what is the discovery itself? Do these fall outside Nature or inside? If inside, what shall we think of a Nature which in the fullness of time is able to produce a brilliant essay on her own shortcomings, and advise men how to bear themselves in consequence? If, on the other hand, Huxley and his works fall outside Nature, to whom or what do they belong? . . . If your Universe is really one, it must show itself capable of producing, not mind in the abstract, but those particular operations of mind which Spinoza's or Haeckel's answer to the riddle exhibits. If it is only Spinoza or Haeckel who provides the answer, and not the universe itself, then you are no monist but a dualist, the universe standing on this side and Spinoza and

Haeckel with their keys on that; and how the keys came to fit the lock will give rise to a new riddle several degrees harder than the old. If, on the other hand, you regard Haeckel and his works as facts, organically related with all other facts to one another and the whole, qualifying by their presence the meaning of everything else and being qualified in return, then there is no escaping the conclusion that it is the universe itself by means of Haeckel, and not Haeckel apart from the universe, which answers its own riddles. And that discovery will send you further than Haeckel in search of light. For what precisely we want to know is not in general how matter can evolve intelligence, but how the universe comes, first, to present itself as this riddle and then to evolve this answer. In other words, Haeckel will not explain the universe until he has shown how the universe explains him.' (*Hibbert Journal*, vol. vi (1907), pp. 19, 32).

Professor W. R. Sorley, in his recent *Gifford Lectures*, observes: 'The basis of our theory of reality should be as broad and complete as possible. . . . The facts of morality as they appear in the world, and the ideas of good and evil found in man's consciousness, are among the *data* of experience. If we overlook them in constructing our theory of reality, we do so at the risk of leaving out something that is required for a view of the whole. . . . Our final view of reality must be based upon experience. This experience must be taken in its whole range, and must not be arbitrarily limited to the *data* of perception which intelligence works up into science. The appreciation of moral worth is as true and immediate a part of our experience as the judgments of perception. . . . If we derive ethical truths from non-ethical premisses, then our ethical propositions must begin somewhere. There must be some proposition in our system which contains for the first time an ethical idea ; and we shall accept this proposition because it is implied by a preceding proposition which does not contain any ethical idea. How is it possible for this to be ? Where are the non-ethical premisses which, of themselves, justify an ethical conclusion ? . . . The ethical concept could never have been evolved out of non-ethical antecedents and without the help of moral experience.' (*Moral Values and the Idea of God*, 1918, pp. 1, 13, 20).

VII

THE REVELATION OF IDEALS

WE have traced, in outline, the ways in which the Infinite Power reveals itself in the realm of natural Law, in the principle of organic Life, and in the realization of rational Purpose; and we have read these ascending degrees of revelation in the light of a fundamental principle of inference—that the productive source must be interpreted through what it has produced.

A further and more far-reaching application of the same principle now comes before us. We know that the human race, in its evolution, has passed through the different stages of merely physical life, where men like Hercules and Samson, creatures of mere bone and sinew, are the greatest, and Nimrod is a mighty hunter *before the Lord*; from man as physical, through the intellectual, through the moral nature, where the prophets of eternal righteousness are the greatest; on to the spiritual nature that links man to the infinite and the eternal, where the prophets of eternal love are the greatest. In this 'ascent of man' we find the distinctive and characteristic features of human experience. Whence come these highest human qualities? Men have often asked, What is the origin of Evil? We must ask, with even more emphasis, What is the origin of Good?

The late Principal John Caird, of Glasgow, in his *Gifford Lectures*, has observed: 'There is a feeling old as the history of man, which the fleeting, shifting character of the scene on which we look, the transiency of life, the inadequacy of its possessions, the lack of any fixed stay, of anything enduring on which our thoughts and desires can rest—which in briefer terms, the contingency and unsubstantiality of the world and the things of the world inevitably awaken in the mind, and which compels us to seek after a reality beyond the world of shadows, an enduring rock on which, amid the stream that bears us away, we may plant our feet. Now in this very feeling of the instability and illusoriness of the world there is something which betrays the presence in the mind of the germ of the idea of God. . . . If we were wholly finite, we should never be conscious of our finitude. We could have no sense of imperfection but for the presence in us of a standard of perfection. The discernment of vanity and illusion is already the recognition of a truth and reality by which we measure the world of appearances. That we regard the world only as the domain of the things seen and temporal, implies at least a latent reference to the idea of an invisible and eternal life, an existence in which there is no variableness or shadow of turning.'

Is it presumptuous for man, in his ignorance, to claim insight into the Knowledge and Wisdom of the Eternal? It is true that we are ignorant; but we *know* that we are ignorant, and how is this *knowledge* possible ? Let us suppose that we are judging our own knowledge, or some one else's knowledge, of some particular thing, say the reason and meaning of an arithmetical rule. We may be perfectly well able to tell whether the relations of numbers, on which the rule rests, are understood or not. We may be sure that we do not understand them, and yet sure that if we found the true explanation, we should recognize it. This would be impossible if we had not in our minds a standard by which we judge of truth and error in this case. The same principle holds throughout. We are, as it were, able to rise above ourselves, to compare ourselves with others, to pass judgment on ourselves and others, to think of a better self, attainable though unattained. Where does the standard come from, on which this judgment is based ?

It is true that there are human beings in whom the higher intellectual and moral and emotional capacities seem crushed out of existence. And there are those who show no sign of possessing such capacities. Yet it remains true that every one who has begun to realize the possibilities of his manhood, has begun to find in them the revelation of achievements undreamt of before. Did anyone who has the love of man growing within him, or who is possessed by the fascination of science or philosophy or art, ever feel as if his capacity for love, for knowledge, or for beautiful creations, could be exhausted ? No ; the more love grows, the more it feels it can grow ; the more knowledge grows, the more clearly we hear deeps calling unto deeps, waiting to be known.

These ideals are the distinctive and characteristic facts of human experience, given to us by ‘ the Infinite and Eternal Energy from which all things proceed.’ The more they are realized, the greater are the possibilities they reveal. And the Power whence they proceed must be the living infinite Perfection to which they point.

One of the standing mysteries, from the point of view of the materialistic or atheistic explanation of the world, is the life and work of those who stand out as mighty workers in the things of the spirit: those great souls who have been the builders of the city not made with hands. Where do they come from, and what is the source of the energy displayed in their lives? The question has but one answer—it is because there is in the nature of things an inexhaustible Source of just such energy as that.

The work of Christ and of thousands of Christlike men and women are facts. They are genuine redeeming forces in the world; and to say that they are merely human and nothing more, is to beg the whole question. This is where the materialistic or atheistic explanation of the world breaks down. It cannot find a cause adequate to produce such effects.

May we even go further than this? May we say not only that the whole scheme of the world is tributary to man's highest needs, but that the divine action provides also for the special personal needs of particular human beings?

There is a well-known story of some Scottish Covenanters hiding from dragoons in a cave. Soon after they had taken shelter in the cave, up came their pursuers; but, seeing a spider's web at the entrance to the cave, they concluded that no one had entered it recently, and passed on. This has sometimes been quoted as an example of the immediate 'interposition' of God. Of course, it is easy to say that other good men have been hunted without being saved, and that if robbers had been hiding in the cave with their plunder the spider would probably have woven its web all the same. I am concerned with this particular story only as a type of the kind of occurrence which I have in mind, and of the kind of objection that is made to it. Obvious as these objections seem, I cannot admit their validity without examining their unexpressed grounds.

If the objection means that the Infinite cannot or will not be concerned specially with the need peculiar to any particular being, I answer that this implies a metaphysical assumption which cannot be granted. The assumption is, that the existence of God makes no difference to any particular being in the world, except to guarantee its connexion with all other beings in a system of invariable law. This brings us back to the conception of 'God' which we found to be implied in the methods and aims of physical science. 'God' does nothing for us save to guarantee that every thought and deed of ours shall have definite results which are the expression of invariable laws which we may learn to know; and the name God becomes a name for the infinite system of law regarded as a whole. I must repeat that this conception is altogether inadequate and one-sided. It springs from a failure to appreciate the immense importance of human nature, as distinguished from physical nature, in any inquiry into the foundations of theistic belief. For the purposes of any such inquiry, human nature is the most important part of nature as a whole.

We cannot admit a mere metaphysical assumption which excludes the possibility of divine action setting in at particular points of the world, or which implies that God does nothing more than hold the world together.

A more serious objection is raised when it is urged that there is no reason why one good man should be 'providentially' preserved and another allowed to perish. But from the point of view of the Universal Spirit, purposes and reasons are more than they are to us. There may be reasons for the preservation of one and the death of the other which are wholly beyond our view. This is only a 'may be,' but it is enough to counterbalance the objection and turn that also into a mere 'may be.'

Here again we have not got a positive conclusion; we have only invalidated an objection. And the question may be fairly asked, Do you believe in the occurrence of such 'special providences' or do you not?

The question as it stands has two very different meanings. (1) Does your idea of God admit the possibility of such occurrences ? The answer is that it does. An idea of God which entirely excluded their possibility would be a very imperfect idea—would in fact reduce itself to a metaphysical assumption which is a mere arbitrary limitation of the divine life and action. (2) Do you believe that such a case as that of the Covenanters was really a special Providence of God ? I reply that it is not possible to find any grounds for either affirmation or denial. Silence is the only possible reply. We cannot look at the value of the Covenanters' lives from the divine point of view.

There seems only one way by which a more positive conclusion about such events can be reached ; and that is, not by considering what has happened to other people, but by an appeal to your own personal experience of how the varying events of your own past life have worked on you—an appeal which requires years of experience for its full meaning to be seen. The appeal is to *past* experience, not *present* ; for in the present the drift of things is hard to discern. The appeal is to past events seen in the mellow light of memory, when the sting and excitement of their immediately pleasant or painful consequences has passed away. If you can find one past event or experience of your own, whose after effects, unforeseen at the time, can be traced like a golden thread through your life—some event which, whatever its outward effects on your environment, has been for you productive of enduring inward good—then you have found something which is for you a special Providence of God.

There are those who believe that they can point to such events in their lives, though they were full of trouble or tragedy. In sorrow and suffering there is 'a deeper voice across the storm'; a voice, still and small, yet stronger than the tumult of our grief, saying, 'It is I—be not afraid.' I will mention two expressions of this, which have reached me. One says: 'This [the feeling of God's sustaining presence] only came to me after great trouble—very depths of trouble; and the realization of God which it brought seemed to make all the trouble worth while. But I cannot put it properly into words, and I do not like to try.' Another: 'My experience tells me that it is in and after sorrow of the most hopeless sort—as in the death of one we love—that God's relation to us is felt to be at once personal and fuller, richer and more comforting than any human personal relations can be.' Many could bear witness to this, if they were willing or able to speak.

A similar experience arises at times when the presence of something true or beautiful or good uplifts us above ourselves. He who is working for some noble or precious cause—be it the cause of Truth, scientific thought and discovery—or the cause of Beauty, to which the artist gives his heart—or, highest of all, steadfast faithful work in the cause of duty and human welfare, in the great world, the city, or the home—when one gives himself up to such a cause, he sometimes finds that he is not alone, even if others give no sympathy, no help; he seems to rest upon an Almighty strength that flows into him and, as we said, uplifts him above himself. And so he becomes possessed of a power which is more than the power of his single self. The very strength of God has revealed itself within him.

There are many who will be ready to say, 'But nothing of this kind ever comes to me.' In reality it may come and we may scarcely recognize it. There are psychological laws which explain how this may be. We must remember first that every one's soul or real self—call it what you will—is not something with a substantially fixed constitution, and which is self-contained, like a sphere—a sort of 'mighty atom,' a thing with definite limits, which grows only by adding on new habits or new pieces of knowledge. The real self is a thing which is always growing by putting forth native powers, assimilating its experiences, and organizing them according to laws of its own. In the next place, the limits of the self are not at all clearly defined: they certainly are not the same as the limits of clear consciousness. That part of our experiences and inner thoughts and feelings of which we are clearly conscious (i.e., which we fully know that we have) is only a small part of what we really experience and think and feel all the time. The deeper currents of feeling, for the person himself who feels them, are the easiest to overlook; but they are none the less really stirring within him, and perhaps producing their effects among the feelings of which he is clearly conscious; and so it is with thought and with desire. In a word—self-knowledge has degrees of truth; at one time it may be more, at another less; and we never 'know' or consciously take in with perfect accuracy the whole of what is stirring within us. Hence while no one can truly say that he simply has no such experience, no one can say that his own interpretation of the experience has absolute accuracy or truth.

If then our real self is not a self-contained thing, there is nothing contradictory in supposing that it is rooted in an Infinite Being, in whom every human spirit has its roots, and who is the source of life, and strength to all. And if our distinct or clear consciousness of ourselves always has different degrees of truth, then in many cases it may not extend far enough to take in the ‘ roots ’ of our being ; we may not recognize our connexion with or dependence upon the Infinite and Universal. Or, again, there may be a vague sense of dependence, a ‘ longing,’ which may have to satisfy itself as best it can among the opportunities afforded by the interests and duties of life outside the individual. Or, once more, this vague ‘ divine discontent ’ may rise to a consciousness of our dependence on the Divine Life, and of God’s sustaining help.

Good & Evil

VIII

THE CONFLICT OF EVIL WITH GOOD

WE have seen that the difference between the God of Science (so far as science can admit the idea of God into her own distinctive assumptions) and the God of religion, arises from the fact that the idea of God, as religion requires it, is not derived merely from an analysis of the presuppositions and ideals of science as to the systematic order of the universe. It is derived from consideration of what is revealed in the distinctive characteristics of humanity as such; and there is more in humanity than the reign of law. There is an 'increasing purpose' at once rational, ethical, and spiritual, revealed in human evolution, and expressing itself at length in the formulation of ideals involving possibilities to which no limit can be set, and in the realization of types of human life of supreme worth. Our affirmation has been that the Power from which all things proceed is the perfect realization of all that is imperfectly indicated in these human ideals. In this sense we have affirmed 'the existence of God,' by which we mean that the Universe is absolutely rational, and absolutely righteous.

This brings us to a position where we can take up the problem of Evil and at least formulate it in the right way. A great many fundamental questions of this kind appear utterly baffling because they are so often wrongly stated. A general acknowledgment that they are 'mysteries' is of no use at all. It may only be an expression of intellectual indolence, or of a vague feeling of being mentally baffled. What our rational nature demands is, that the 'mystery' should be expressed in the form of a question, with a clear and distinct meaning, an answer to which is conceivable, whether we can give it or not. If we then conclude that the question is unanswerable, we ought to be able to say exactly why it is so.

One thing must be made clear at the outset. When we try to pass judgment on the world, with special reference to the good and evil in it, we are not dealing with a finished product. The traditional idea of creation has probably had its most mischievous effect in constantly suggesting this notion of a completely finished world—finished, let us say, at a certain period in the past. This is once for all excluded by the very conception of natural law as we have analysed it. The universe reveals a system of constant laws of causation, where every distinguishable law means that given certain conditions these conditions will always produce the same result so long as they themselves are not modified.

The significance of the conception rests on the 'if' which is implied; 'if' the conditions are given, the result follows. Now we have no reason to believe that all the conditions for all the laws of the universe are actually given. Conditions which are entirely new may be brought forth in the future, altogether apart from human agency; and no limit can be set to man's own power of creating new conditions and so changing the environment in which he lives. We have not got the question in the right shape when we ask, Why God made the world thus and thus. The world is not yet 'made.' It is in the making; and we have a share in the making of it. From this it follows that there never can be a final and complete 'solution' of the problem of evil by thought or reflection alone, without action. The only final solution will be when all evil is overcome by good. And may we not say that the possibility of this is proved whenever, in our actual experience, some evil thing is overcome by good?

None the less our rational nature demands that the question shall be probed, from the side of reflective thought, as thoroughly as possible—and, first of all, that it shall be rightly stated.

In the next place, we must resolutely resist the temptation to represent evil as in some indirect way 'good.' This is a temptation which many an apologist for God has not been able to resist. How many laborious arguments have been put forward to prove that *pain* is at least indirectly 'good'! There is reason to suspect that most of it is only special pleading for a foregone conclusion. Sometimes, again, the apologist slips into the assumption that evil is in some way unreal. We are told that nothing, even in the range of human passion, is evil 'in itself'; rightly used and ordered, subdued into its proper place, it is not evil. It is clear that this only moves the centre of gravity of the problem. Why are things misused? Why do they fall into confusion and chaos for lack of ordered control? Over a great part of our experience, all this can be traced to the evil or ignorant wills of men; and the wills of men are real.

Evil is real; but its whole import consists in its opposition to good. Good is not good because it opposes evil; but evil is evil because it opposes good. Good has a meaning on its own account; evil has not. Illustration will help to show the importance of these statements.

Consider four main forms of evil which beset human life. (1) Pain, as a matter of scientific fact, is the feeling of something that hinders bodily life. It means that some physiological function is injured or obstructed. And a healthy harmonious body is in itself good, though it is by no means the highest good. (2) Mental pain, grief, unhappiness, is the feeling of disharmony among our ideas, or of frustrated desires or endeavours. True, desires or endeavours may themselves be evil, but only because they frustrate some other desires which are higher and better. (3) Moral evil is what hinders the growth of man's moral nature—of that supreme good, at once individual and social, for which man is made. (4) Intellectual evil or error or ignorance is what hinders the mind's endeavour to comprehend and grasp things by the way of rational understanding. As there are different kinds of good, of different degrees of worth, so there are different kinds of evil.

The universe has not produced good and evil like two opposite kinds of fruit growing on one tree. The very life of good consists in overcoming evil, just as the very life of knowledge consists in overcoming ignorance. In our experience good and evil are involved in this relation of mutual conflict.

Our problem is really contained, in its entirety, in the simple words of the far-reaching question which the child asks at his mother's knee—'Why did God let it happen?' In other words, why was this way chosen, when, from the point of view of an infinite intelligence, other ways must have been conceivable? Why should our life in this world be involved in an unceasing warfare against evil, ignorance, pain? 'Why,' it has been said, 'has the human race had to pay such an enormous price for the little bit of knowledge and wisdom we have—the little bit of happiness and peace that is ours ? Why have we had, as a race, to wade through such rivers and seas of blood, through so much cruelty, savagery, suffering, and pain—experience so many falls, so many apparently needless though agonizing blunders and mistakes, so many disappointments, depressions, trials, and troubles, so much grief and anguish ? Would it not have been far better (if God is almighty and all-wise) to achieve his end of perfection and bliss for his children at one stroke ? '

It is scarcely possible to exaggerate the importance of the fact, which we have already emphasized, that the process of evolution, and in particular the process of human history, reveal the achievement of purposes which could have been foreseen *by an adequate intelligence* to be the inevitable result of the means employed—that these purposes are good, and enable us to mark a progress or ' ascent ' in the process. But our problem now relates to the means employed to secure the advance.

The compelling force of the question ‘Why?’ relates to the method.

It is, again, scarcely possible to exaggerate the importance of the fact that the Power which has produced the world has produced us, and has given us the ideals in whose light we condemn the world: and, if it is the source of the evil in the world, it is also the source of the love which spends itself in overcoming the evil. But the force of the question *Why*? remains undiminished.

I do not propose to discuss the way of escape which strangely commends itself to some thoughtful people—I mean the assumption that God is ‘limited’ and can achieve his ends only by working against some kind of hindrance or obstacle, and that the moral order of the world is the best under the actual difficulties in which God finds himself involved. It may, however, be permissible to observe that in the actual statements of this view I can trace no clear conception of what the hindrances or difficulties, in which

God is involved, really are. And further, if it is taken for granted that God will in the end overcome all these difficulties, this implies the certainty of ultimate victory; and the only ‘limitation’ involved, appears to be the necessity that the divine purposes shall be achieved gradually, through a process in time. If, on the other hand, we cannot be sure that God will eventually gain the victory, then we are left with the truly appalling conception of a super-human Muddler, whose only claim on our admiration or worship is that his intentions are good and that he may possibly ‘muddle through’ in the end. Better demonstrated atheism, better demonstrated materialism, than this. The mechanical laws of the universe are at least approximately constant; we can rely on them. But a so-called God who is only a super-human Muddler cannot give us security for anything. Subjection to the incompetence of any earthly visible monarch were better than subjection to the incompetence of such an ‘invisible King.’ If this is offered as a solution of the problem of evil, the remedy is worse than the disease.

The truth is, that any thorough examination of this problem brings us face to face with a final act of faith, which cannot be made a matter of demonstration—an ultimate act of faith on which we must stake our whole conviction of the meaning and value of life. This may be shown in more than one way.

It is urged that God chose the moral order of the world, as it has been determined through the ages, because only so could man's moral freedom be secured—the freedom which is realized equally in doing right and in doing wrong, and which therefore involves the power of going wrong as well as of going right. Granting that we are thus endowed to a limited extent with a real preferential power; granting that this power of initiative is the supreme privilege of personality; granting that its value is not a mere matter of opinion but is a reasonable conviction; it does not follow that the gift of free will to man is worth all the price that has been paid by man for it. In order to justify such a price, its value must be supreme and in fact absolute. Now it is open to anyone to hold this; but he can hold it only as a final act of faith, not as a matter of demonstration: and it is not a conviction which all can hold. There are others who believe that while the value of moral freedom is very great, it is not so great as to be capable by itself of affording any adequate explanation of the moral disorder of the world.

We may carry the question a little further and connect it with *the value of the reign of law* in the universe. We have seen that the inviolability of natural law must be maintained if knowledge and even life itself are to be possible. Yet no sooner have we made this clear to ourselves, than there rises before us the vision of endless broods of physical evils, and often of moral and spiritual evils, due to the inexorable operation of this natural order. Over a large part of life, we act in ignorance of the laws on which the results of our actions depend. From the ethical point of view, such ignorance is often culpable; we ought to have known. At other times we may in entire ignorance and innocence act so as to bring terrible suffering on ourselves and others. Why this ignorance ? It is scarcely possible to exaggerate the importance of the fact that nature herself affords the means of warding off or destroying all the evils she seems to inflict, and that every advance in knowledge and experience is directly or indirectly a new discovery of means of avoiding or doing away with some evil that besets human life. And yet how little is actually known ! How slowly and painfully has that little knowledge been won !

> Nature is made better by no mean
> But nature makes that mean ;

and yet, how deeply are nature's means of healing hidden ! Why this concealment ? What is the necessity for the long-drawn out agonies springing from man's ignorance and superstition ?

When we contemplate the sufferings which are the outcome of human ignorance and the inviolability of natural law, what we instinctively desire is that nature's laws should be supreme *with exceptions*, in other words, that there should be special interventions to ward off these disastrous results. And when we frankly face the question why these interventions should not take place, we begin to see the direction in which any possible answer must lie. The inviolability of law must be of such value that these interventions would themselves be evil—a greater evil than the actual suffering and death which result from our mistakes. This assumption is an act of faith, though it is strongly suggested by the methods of science and by the facts of experience.

A similar result is reached when we carry the question to its final issue—*the value of evil in our experience* as a training-ground for character. 'A world which no evil could invade,' said James Martineau, 'would be a world which no character could inhabit.'

The paradox of the moral life is that goodness grows by conflict with the very thing that tends to hinder its growth. The only goodness of which we have any experience is a goodness which has grown through struggle, ending—even if through temporary defeat—in victory. To say that a man is ‘ good ’ means that he has wrought out goodness as the result of trying, of failure, of falling and rising again. The struggle with evil in some form—and especially with inward evil—is essential to the growth of character as we know it.

This world is a moral and spiritual gymnasium where we are to be developed and trained so that at last we may willingly learn to live the life of children of the Highest, and attain to the service which is perfect freedom. What men have wrought into their very being through effort and struggle, and it may be through suffering—the inward strength and experience and sympathy so gained—are of very great worth; and the effort and struggle required for the achievement of these greatest things in human life, would be impossible save as against the challenging resistance offered by the evil things of the outer and the inner world. This we know to be true. How far does it carry us towards the solution of our problem?

It is no solution at all to say that our goodness grows through conflict with evil, if the same goodness could be equally attained through a process free from this element of perpetual conflict. It is true, *we* cannot conceive the nature of such a process entirely free from effort and struggle; but an Infinite Spirit could. All the goodness *known to us* has grown in human souls through the overcoming of evil; but the required condition is that from the point of view of the Infinite and Eternal, the highest goodness can be realized in no other way. We know that its value is very great; but its real worth must be far greater than we can understand—so great, that no price is too high to pay for it. And at this point, it must be said once more, we do seem to have reached the ultimate act of faith, on the validity of which we must stake our whole conviction of the meaning and value of life.

This persistent hope and faith of the human race, which alone saves men from utter pessimism and despair—this thought that the world, in spite of all its evil, is subject to a Power which means well with us, and is the instrument of a Plan working out a good which is greater, not less, than we can conceive—this is too valuable, too full of significance for practical life, to be given up simply because of *what we do not know*. For that is what a rejection of the final act of faith really means.

Our knowledge at present, even our scientific knowledge, though it has enabled us to improve the outward circumstances of human life so much, and give us so much power of foresight, is extremely imperfect. This is never denied. Nor is it denied that we are imperfect on every side of our being. The best of us are only children of an older growth. If, then, there is a universal and all-embracing plan operative in the world, what should we expect? We should expect beforehand that while there were many real indications of the operations of such a Plan, there would also be many events which we could not reconcile with it, owing to our ignorance. Shall we therefore settle down into the conviction that only the darkest forebodings as to our nature and destiny can be true?

Little as we know of the ultimate sources of being, we know that those locked chambers to which as yet we cannot penetrate, are full of something more rich and powerful than we can comprehend. Every step of man's advance in knowledge has been a progress into marvels and mysteries which, like mountains in his pathway, have risen before him to grander heights the nearer he has come to them. In every respect existence is found to be greater, finer, more complex, more inexhaustible than man at first supposed.

These suggestions are now being made from the side of physical science in ways more vivid and striking than ever before. But the history of creation has the same story to tell. Out of nothing, something. Out of chaos, order. Out of nakedness and ugliness, grandeur and beauty. Out of barren sands, left by receding floods and glaciers, a carpet of flowers and grasses such as no human skill has ever spread for a conqueror's feet. Out of dull earth, the strength and grace and swiftness of living and moving forms. Out of bloodshed and passion and ferocious hatred, our temples of worship, our institutions of learning, our organizations of a sweet and gracious charity.

The Power that guides the worlds has not failed hitherto to lift its creations step by step to a higher perfection. Have we now reached the end of its resources, with no better thing in store? Assuredly we are not called upon to take so dark a view, but to have confidence, instead, that all human souls shall be guided at last into the light of that perfect day which has been the ideal of the ages.

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